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10/585,189	10/30/2006	Brian William Holmes	128605	1166
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EXAMINER				
CALLAWAY, JADE R				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/585,189

Applicant(s)

HOLMES, BRIAN WILLIAM

Examiner

JADE R. CALLAWAY

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/3/06, 10/30/06.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-23 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 03 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/5506)
Paper No(s)/Mail Date 7/3/06
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The preliminary amendments to the claims and the specification, in the submission dated 7/3/06, are acknowledged and accepted.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in The United Kingdom on 1/13/05. It is noted, however, that applicant has not filed a certified copy of the 0400681.3 application as required by 35 U.S.C. 119(b).

Drawings

3. The drawings were received on 7/3/06. These drawings are acceptable.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because of the legal phraseology used and because the length exceeds 150 words. Correction is required. See MPEP § 608.01(b).

6. The title of the invention is objected to because the title is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: that the included angle of the viewing zone defines a distance at least 18% of the dimension of the device in the parallax direction.

Claim Objections

8. Claim 1 is objected to because of the following informalities: the following terms lack antecedent basis in the claim: "the rate of movement," the included angle," and "the dimension of the device in the parallax direction." Appropriate correction is required.
9. Claims 2-23 are dependent on claim 1 and inherit at least the same deficiencies as claim 1.
10. Claim 18 is objected to because of the following informalities: the following term lacks antecedent basis in the claim: "the dimension of the device in the parallax direction." Appropriate correction is required.
11. Claim 19 is objected to because of the following informalities: the following term lacks antecedent basis in the claim: "interplane distance." Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 defines a security device comprising a surface relief structure which reconstructs a plane image and a plane holographic object, wherein the spacing between the planes is measured in terms of a "rate of movement." The reasoning provided in the specification for the equivalence between the spacing and the rate of movement is based on the small angle approximation for cosines based on the view angle. However, when the viewing angle is larger than those for which the small angle approximation applies, a $\cos(\phi_{\max})$ factor must be taken into consideration. Since no angle limitation is given, it is unclear how one of ordinary skill in the art would make or use the security device with the desired parameters of claim 1 without undue experimentation. Additionally, regarding figure 1, it also appears that, at a given angle, the measurement of the distance between the objects 1 and 2 depends on the viewing position of the observer. Since the position of the observer is not specified, it is unclear how the distance measurements are performed to determine the rate of movement. There is not enough direction or guidance provided by the specification or figures of the instant application to make and/or use the invention. Further, undue experimentation would appear to be needed to determine appropriate viewing locations, viewing angles, object separations and reference locations for measurement of each of the above to determine a "rate of movement," particularly where the small angle approximation is no

longer appropriate. For purposes of examination, the limitation "rate of movement being at least 6mm per radian of tilt" will be interpreted to mean there is a rate of apparent movement of the first holographic image relative to a further image.

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 8-10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. Regarding claim 8, the phrase "and/or" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05. For purposes of examination the phrase "and/or" in claim 8 will be interpreted to mean "the surface relief microstructure replays the first or second holographic element."

17. Claims 9-10 are dependent on claim 8 and thus inherit at least the same deficiencies as claim 8.

18. Regarding claim 12, the phrase "and/or" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05. For purposes of examination the phrase "and/or" in claim 12 will be interpreted to mean "a device wherein first or second holographic image elements have a dimension of at least 3mm in the parallax direction."

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 1-8 and 14-23, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Antes (4,568,141).

Consider claims 1 and 18, Antes discloses (e.g. figures 1-7) a security device comprising a surface relief microstructure (4, diffraction structure) which, in response to incident radiation (via, 5 or 6, light sources), replays a hologram viewable within a viewing zone, the hologram comprising at least a first, holographic image element (10, color pattern) in an image plane spaced from the surface of the microstructure (e.g. figures 3-4), the device exhibiting at least one further image (second color pattern 10) in a plane spaced from the image plane of the first holographic element (e.g. figures 3-4, individual elements S), wherein the spacing between the first holographic element image plane and the plane of the further image is such that, on tilting the device, the first holographic image element exhibits apparent movement relative to the further image [col. 3, lines 4-68, col. 4, lines 1-68, col. 6, lines 62-68, col. 7, lines 1-57]. However, Antes does not specifically disclose that the rate of movement of the first holographic image relative to the further image is at least 6mm per radian of tilt, and the product of the rate of movement and an included angle of the viewing zone defines a distance at least 18% of a dimension of the device in the parallax direction. Note that

the Court has held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation; **see In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select the above parameters so that the two images can be viewed distinctly so that a security article can be easily verified by an observer.

Consider claims 2 and 4, the modified Antes reference discloses (e.g. figure 1) a device wherein the at least one further image is non-holographic and substantially spatially invariant relative to the device (the other indicia on the security article is spatially invariant relative to the device) [col. 3, lines 4-22].

Consider claim 3, the modified Antes reference discloses (e.g. figure 1) a device wherein movement of the first holographic image causes the first holographic image to overlap the, or one of the further images (the other indicia on the security article could be overlapped by the holograms produced by the diffraction structure) [col. 3, lines 4-22].

Consider claim 5, the modified Antes reference discloses (e.g. figures 1-7) a device wherein the hologram defines the at least one further image as one or more second holographic image elements (S1-Sn, individual structural elements) [col. 4, lines 1-68].

Consider claim 6, the modified Antes reference discloses (e.g. figure 1) a device wherein the plane of the further image(s) (the non-holographic indicia on the security article) is substantially coincident with the plane of the surface relief microstructure (4, diffraction structure) [col. 3, lines 4-22].

Consider claim 7, the modified Antes reference discloses (e.g. figure 3) a device wherein the first and second holographic image elements are formed in planes respectively in front of and behind the plane of the surface relief microstructure (4, diffraction structure) [col. 4, lines 1-68].

Consider claim 8, the modified Antes reference discloses (e.g. figures 3-4) a device wherein the surface relief microstructure (4, diffraction structure) replays the first or second holographic element into a set of discrete, angularly spaced subsidiary viewing zones (11, surfaces) [col. 4, line 1 to col. 7 line 2].

Consider claims 14-17, the modified Antes reference discloses (e.g. figure 5) a device wherein the first and at least one further images define a symbol comprising a shape having a visual meaning (e.g. an arrow) and are relatively movable to form a recognizable symbol (e.g. an arrow) [col. 7, lines 2-25].

Consider claim 19, the modified Antes reference discloses an included angle of the viewing zone that is no greater than 1 radian [col. 5, lines 31-33]. However, the modified Antes reference does not disclose that the size of the device in the parallax direction is less than 5 times the interplane distance. Note that the Court has held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation; see **In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select the size of the device to be less than 5 times the interplane distance so that the article can be made to fit within a particular size parameter while still producing distinct image in the security article.

Consider claims 20-23, the modified Antes reference discloses an article (e.g. a banknote or a check) carrying a security device, wherein the article comprises paper [col. 3, lines 4-22].

21. Claims 9-12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Antes (4,568,141) in view of Drinkwater (6,765,704).

Consider claims 9-10, the modified Antes reference does not specifically disclose that the or each element is not visible in spaces between the subsidiary viewing zones. Antes and Drinkwater are related as holographic devices. Drinkwater teaches (e.g. figure 3) a device wherein each element is not visible in spaces between the subsidiary viewing zones (17-19, viewable images) and the viewing zones are substantially equally spaced apart [col. 11, lines 16-30]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Antes, as taught by Drinkwater, so that the holographic images are not blurred over one another and very distinct images can be viewed by an observer.

Consider claim 11, the modified Antes reference does not specifically disclose that the viewing zones and the spaces between the viewing zones have substantially the same angular extent. Note that the Court has held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation; see **In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the angular extent be the same for the viewing zones and the spaces between the viewing zones so that a regular pattern

of holographic images verses non holographic images can be established to further enhance a security device in an article for verification purposes.

Consider claim 12, the modified Antes reference does not disclose that the first and/or second holographic image elements have a dimension of at least 3mm in the parallax direction. Antes and Drinkwater are related as holographic devices. Drinkwater teaches a device wherein first or second holographic image elements have a dimension of at least 3mm in the parallax direction [col. 8, lines 45-64]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Antes, as taught by Drinkwater, in order to ease the authentication of a device based on the visual image features.

22. Claim 13, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Antes (4,586,141) in view of Kodama (2004/0121241).

Consider claim 13, the modified Antes reference does not disclose that at least one of the holographic image elements exhibits a color variation as it moves. Antes and Kodama are related as holographic devices. Kodama teaches (e.g. figures 4a-5b, 9) at least one holographic image element that exhibits a color variation as it moves [0071-0072]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Antes, as taught by Kodama, in order to achieve an enhanced security feature based on the determination of whether or not a device has the same aesthetic properties and color variations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JADE R. CALLAWAY whose telephone number is

(571)272-8199. The examiner can normally be reached on Monday to Friday 7:00 am - 4:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC
/JADE R. CALLAWAY/
Examiner, Art Unit 2872